

Waste Isolation Pilot Plant
Class 3 Permit Modification Request
June 2005

Attachment M2		
Section	Change	Explanation of Change
M2	Table of Contents	The table of contents for Attachment M2 has been revised to include new sections, tables and figures.
M2-1	<p>The Disposal Phase will consist of receiving contact-handled (CH) and remote-handled (RH) TRU mixed waste shipping containers, unloading and transporting the waste containers to the Underground HWDUs, emplacing the waste in the Underground HWDUs, and subsequently achieving closure of the Underground HWDUs in compliance with applicable State and Federal regulations.</p> <p><u>During the ten (10) year period of this Permit, the volume of RH TRU mixed waste emplaced in the repository will not exceed 123,585 ft³ (3,500 m³).</u> For the purposes of this Permit, disposal of containers of CH TRU mixed waste will occur only in the three HWDUs designated as Panels 1-3 (See Figure M2-1). <u>RH-TRU mixed waste disposal may begin in Panel 3.</u> In the future, the Permittees may request a Permit to dispose of containers of <u>CH and RH</u> TRU mixed waste in five (5) additional panels that meet the definition of the HWDU in Permit Module IV. ...</p> <p>...</p> <p>The HWDUs ... the room. <u>RH TRU mixed waste may be disposed of with up to 730 RH TRU mixed waste canisters emplaced in each panel. The initial waste emplacement activity in rooms where RH TRU mixed waste will be disposed is the placement of canisters in predrilled holes in the ribs.</u></p>	<p>This section has been revised to reflect the amount of RH TRU mixed waste anticipated to be placed in the repository.</p> <p>This volume of RH TRU mixed waste assumes the approval of Panels 4-7 for TRU mixed waste disposal during the term of the HWFP.</p>
M2-2a(3)	<p>At any given time during waste emplacement activities, there will be a significant level of activity multiple in three rooms. one room that will be receiving CH waste containers. One room will be receiving CH TRU mixed waste containers (e.g., Room No. 7), while the next room will be receiving RH TRU mixed waste (e.g., Room No. 6) and RH TRU mixed waste emplacement boreholes will be drilled in the third room (e.g., Room No. 5). The remaining ... waste receipt. A minimum of 35,000 ft³ (990 m³) per minute will be maintained in each active room when workers are present in the room. This quantity of air is required to support the numbers and types of diesel equipment that are expected to be in operation in the area, to support the underground personnel working in that area, and to exceed a minimum air velocity of 60 ft (18 m) per minute as specified in the WIPP Ventilation Plan. ...</p>	<p>This section has been revised to indicate the process of waste emplacement during disposal of RH TRU <u>mixed</u> waste. It is possible that three or more rooms may have some level of activity at the same time.</p>

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M2-2a(4)	<p><u>M2-2a(4) RH TRU Mixed Waste Handling Equipment</u></p> <p><u>The following are the major pieces of equipment used to manage RH TRU mixed waste in the geologic repository. A summary of equipment capacities is included in Table M2-3.</u></p> <p><u>The Facility Cask Transfer Car</u></p> <p><u>The Facility Cask Transfer Car is a self-propelled rail car (Figure M2-14) that operates between the Facility Cask Loading Room and the geologic repository. After the facility cask is loaded, the Facility Cask Transfer Car moves onto the waste hoist conveyance and is then transported underground. At the underground waste shaft station, the Facility Cask Transfer Car proceeds away from the waste hoist conveyance to provide forklift access to the facility cask.</u></p> <p><u>Horizontal Emplacement and Retrieval Equipment</u></p> <p><u>The Horizontal Emplacement and Retrieval Equipment (HERE) (Figure M2-15) emplaces canisters into a borehole in a room wall of an Underground HWDU. Once the canisters have been emplaced, the HERE then fills the borehole opening with a shield plug.</u></p>	<p>This new section describes the equipment necessary for the emplacement of RH TRU <u>mixed</u> waste.</p>
M2-2b	<p>A forklift ... attachment. The <u>CH</u> TRU <u>mixed</u> waste will be emplaced room by room in Panels 1 through 3.</p> <p>Once a ... ventilation regulator. <u>When RH TRU mixed waste canister emplacement is completed in a room, CH TRU mixed waste emplacement can begin in that room.</u> ...</p>	<p>This section has been revised to indicate the process description when RH TRU <u>mixed</u> waste is being emplaced. New process flow diagrams have been added.</p>

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M2-2b	<p><u>RH TRU Mixed Waste Emplacement</u></p> <p><u>The Facility Cask Transfer Car is loaded onto the waste hoist and is lowered to the waste shaft station underground. At the waste shaft station underground, the facility cask is moved from the waste hoist by the Facility Cask Transfer Car (Figure M2-16). A forklift is used to remove the facility cask from the Facility Cask Transfer Car and to transport the facility cask to the Underground HWDU. There, the facility cask is placed on the HERE (Figure M2-17), which has been previously aligned with a horizontal hole bored into the room wall. The facility cask is moved forward to mate with the shield collar, and the transfer carriage is advanced to mate with the rear facility cask shield valve. The shield valves on the facility cask are opened, and the transfer mechanism advances to push the canister into the borehole. After retracting the transfer mechanism into the facility cask, the forward shield valve is closed, and the transfer mechanism is further retracted into its housing. The transfer mechanism is moved to the rear, and the shield plug carriage containing a shield plug is placed on the emplacement machine. The transfer mechanism is used to push the shield plug into the facility cask. The front shield valve is opened, and the shield plug is pushed into the borehole (Figure M2-18). The transfer mechanism is retracted, the shield valves close on the facility cask, and the facility cask is removed from the HERE.</u></p> <p><u>Shield plugs (29 in. (73 cm) in diameter) are inserted into the borehole (30 in. (75 cm) in diameter) after emplacement of the canister (approximately 26 in. (65 cm) in diameter). They provide the necessary shielding for the exposed end of the borehole, limiting the borehole radiation dose rate at 30 cm to less than 10 mrem per hour for a canister surface dose rate of 100 rem/hr.</u></p> <p><u>The amount of RH TRU mixed waste disposal in each panel is 730 canisters based on thermal and geomechanical considerations. RH TRU mixed waste canisters will be placed into boreholes in each panel.</u></p> <p><u>Figures M1-26 and M1-27 are flow diagrams of the RH TRU mixed waste handling process for the RH-TRU 72-B and 10-160B casks, respectively.</u></p>	<p>This section has been revised to indicate the process description when RH TRU mixed waste is being emplaced. New process flow diagrams have been added.</p>

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M2-2b	<p>CH TRU mixed ... reviews . The trailers carrying the shipping containers will be stored temporarily at the Parking Area Container <u>Staging Area until the waste verification and examination requirements of Permit Attachment B7 are met</u> Storage Unit (Parking Area Unit). A forklift will remove the Contact Handled Packages from the transport trailers and will transport them into the Waste Handling Building Container Storage Unit <u>TRUDOCK Staging Area</u> for unloading of the waste containers. Each TRUPACT ... drums. An overhead bridge crane will be used to remove the waste containers from the Contact Handled Packaging and place them on a facility <u>or containment</u> pallet. Each facility ... TDOPs. <u>After approval of the waste verification and examination each</u> Each stack of waste containers will be secured prior to transport underground (see Figure M2-3). A forklift ... backed off. Containers of CH TRU <u>mixed</u> waste (55-gal (208 L) drums, SWBs, 85-gal (321 L) drums, 100-gal (379 L) drums, and TDOPs) can be handled individually, if needed, using the forklift and lifting attachments (i.e., drum handlers, parrot beaks).</p> <p>...</p> <p>A forklift ... or repaired. CH TRU <u>mixed</u> waste containers will be continuously vented. ...</p> <p>...</p> <p>The emplacement ... handling operations . A minimum of 16 in. (41 cm) was specified in the Final Design Validation Report (Appendix D1, Chapter 12 of the WIPP RCRA Part B Permit Application (DOE, 1997)) to maintain air flow. ...</p> <p>...</p> <p>● <u>RH TRU <u>mixed</u> waste emplacement does not impede CH TRU mixed waste throughput</u></p>	<p>This section has been revised to indicate the process description when RH TRU <u>mixed</u> waste is being emplaced . New process flow diagrams have been added.</p> <p>The assumptions on estimating the time to fill each HWDU has been revised to include waste verification and examination.</p>

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Table M2-3	<p><u>TABLE M2-3</u></p> <p><u>RH TRU MIXED WASTE HANDLING EQUIPMENT CAPACITIES</u></p> <p><u>CAPACITIES FOR EQUIPMENT</u></p> <p><u>41-Ton Forklift</u> <u>82,000 lbs</u></p> <p><u>MAXIMUM GROSS WEIGHTS OF CONTAINERS</u></p> <p><u>RH TRU Facility Canister</u> <u>10,000 lbs</u></p> <p><u>55-Gallon Drum</u> <u>1,000 lbs</u></p> <p><u>RH TRU Canister</u> <u>8,000 lbs</u></p> <p><u>MAXIMUM NET EMPTY WEIGHTS OF EQUIPMENT</u></p> <p><u>Facility Cask</u> <u>67,700 lbs</u></p>	<p>This table has been added to indicate the RH TRU mixed waste equipment handling capacities.</p>
<u>Figures M2-14, 15, 16, 17, 18</u>	<u>These are new figures.</u>	<u>New figures to depict RH waste emplacement.</u>
<u>Figure M2-12</u>	<u>Revised Figure M2-12.</u>	<u>Figure M2-12 has been revised.</u>